

XP04654 (XP4654)

Silicon NPN epitaxial planer transistor (Tr1)
 Silicon PNP epitaxial planer transistor (Tr2)

For high speed switching

■ Features

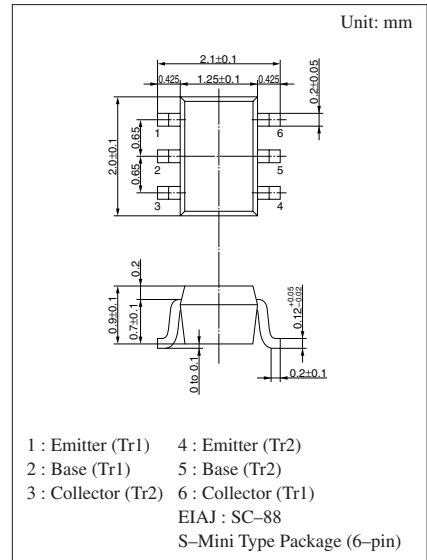
- Two elements incorporated into one package.
- Reduction of the mounting area and assembly cost by one half.

■ Basic Part Number of Element

- 2SC3757 + 2SA1738

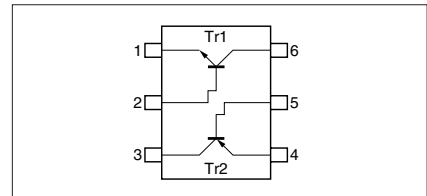
■ Absolute Maximum Ratings (Ta=25°C)

	Parameter	Symbol	Ratings	Unit
Tr1	Collector to base voltage	V_{CBO}	40	V
	Collector to emitter voltage	V_{CES}	40	V
	Emitter to base voltage	V_{EBO}	5	V
	Collector current	I_C	100	mA
	Peak collector current	I_{CP}	300	mA
Tr2	Collector to base voltage	V_{CBO}	-15	V
	Collector to emitter voltage	V_{CES}	-15	V
	Emitter to base voltage	V_{EBO}	-4	V
	Collector current	I_C	-50	mA
	Peak collector current	I_{CP}	-100	mA
Overall	Total power dissipation	P_T	150	mW
	Junction temperature	T_j	150	°C
	Storage temperature	T_{stg}	-55 to +150	°C



Marking Symbol: ED

Internal Connection



Note.) The Part number in the Parenthesis shows conventional part number.

Electrical Characteristics (T_a=25°C)

• Tr1

Parameter	Symbol	Conditions	min	typ	max	Unit
Collector cutoff current	I _{CBO}	V _{CB} = 40V, I _E = 0			0.1	μA
Emitter cutoff current	I _{EBO}	V _{EB} = 4V, I _C = 0			0.1	μA
Forward current transfer ratio	h _{FE}	V _{CE} = 1V, I _C = 10mA	60		320	
Collector to emitter saturation voltage	V _{CE(sat)}	I _C = 10mA, I _B = 1mA		0.17	0.25	V
Base to emitter saturation voltage	V _{BE(sat)}	I _C = 10mA, I _B = 1mA			1.0	V
Transition frequency	f _T	V _{CB} = 10V, I _E = -10mA, f = 200MHz		450		MHz
Collector output capacitance	C _{ob}	V _{CB} = 10V, I _E = 0, f = 1MHz		2	6	pF
Turn-on time	t _{on}	*1		17		ns
Turn-off time	t _{off}			17		ns
Storage time	t _{stg}			10		ns

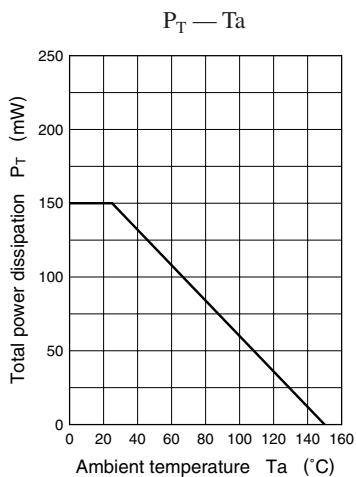
• Tr2

Parameter	Symbol	Conditions	min	typ	max	Unit	
Collector cutoff current	I _{CBO}	V _{CB} = -8V, I _E = 0			-0.1	μA	
Emitter cutoff current	I _{EBO}	V _{EB} = -3V, I _C = 0			-0.1	μA	
Forward current transfer ratio	h _{FE1}	V _{CE} = -1V, I _C = -10mA	50		150		
	h _{FE2}	V _{CE} = -1V, I _C = -1mA	30				
Collector to emitter saturation voltage	V _{CE(sat)}	I _C = -10mA, I _B = -1mA		-0.1	-0.2	V	
Transition frequency	f _T	V _{CB} = -10V, I _E = 10mA, f = 200MHz	800	1500		MHz	
Collector output capacitance	C _{ob}	V _{CB} = -5V, I _E = 0, f = 1MHz		1		pF	
Turn-on time	t _{on}	*2		12		ns	
Turn-off time	t _{off}				20		ns
Storage time	t _{stg}				19		ns

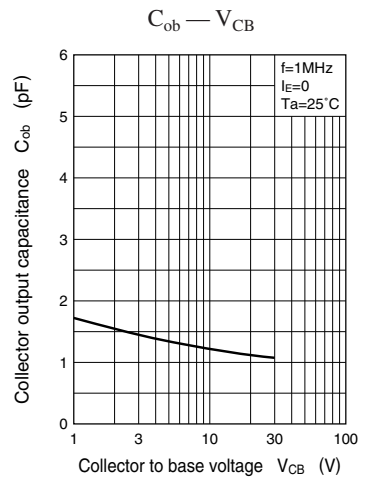
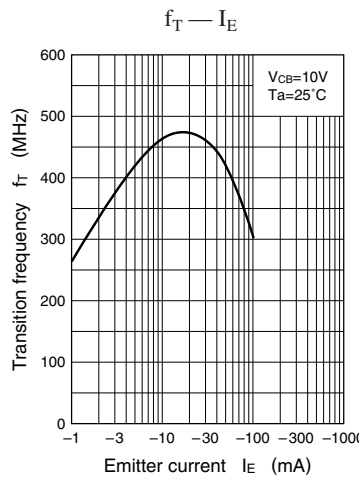
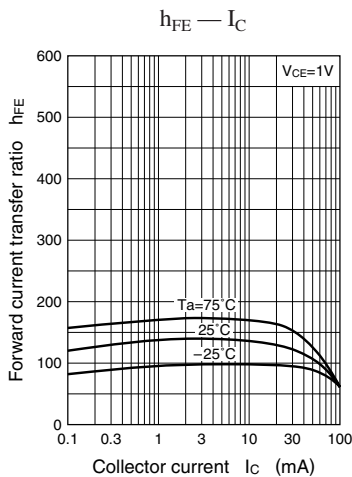
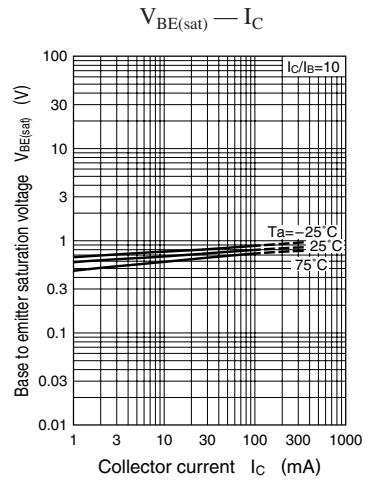
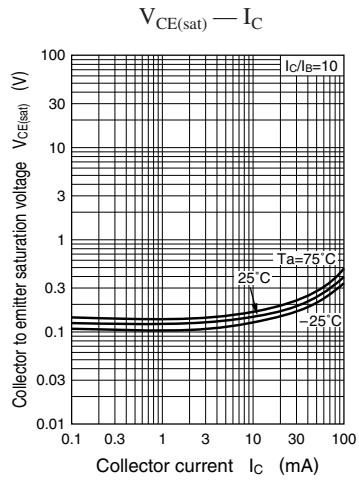
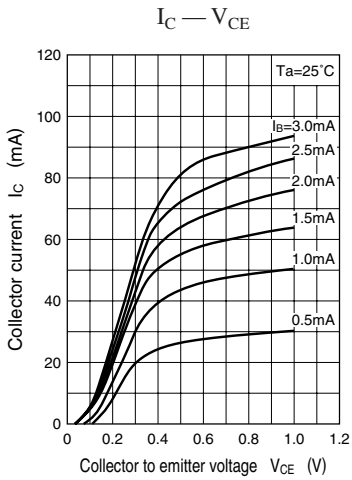
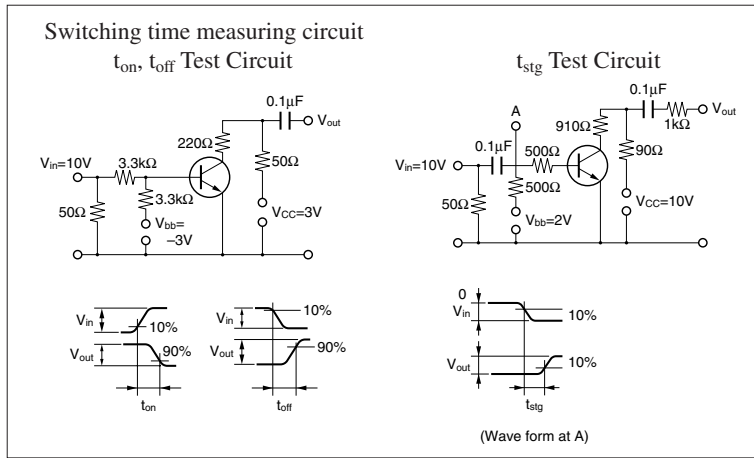
*1 Refer to the test circuit (page 459)

*2 Refer to the test circuit (page 460)

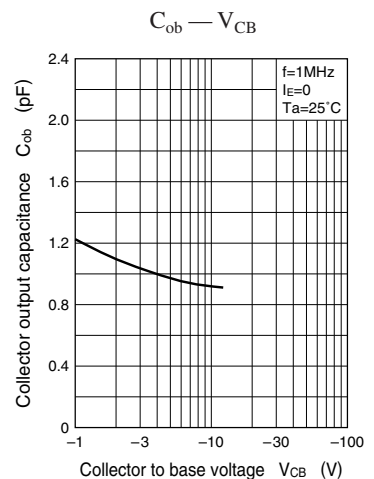
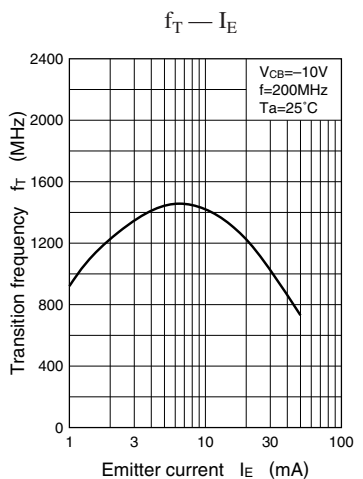
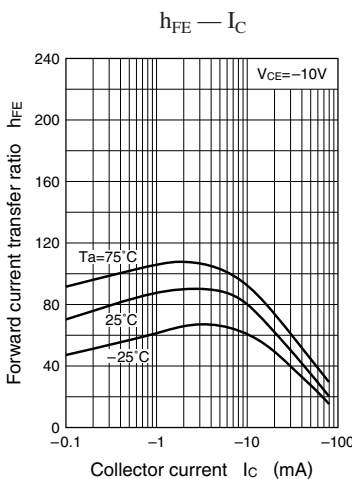
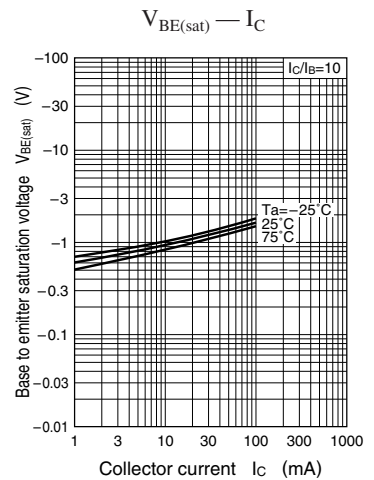
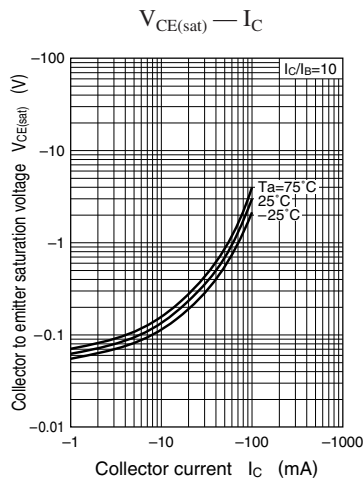
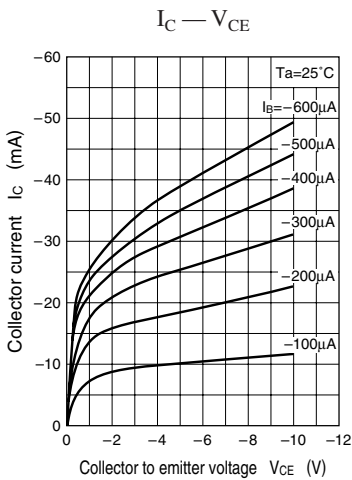
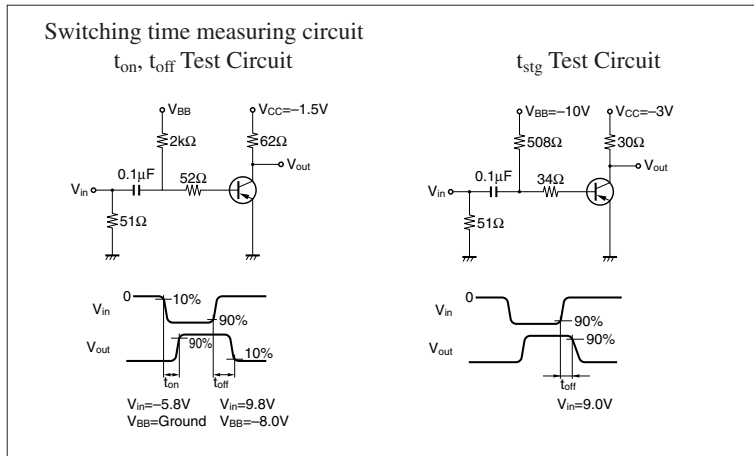
Common characteristics chart



Characteristics charts of Tr1



Characteristics charts of Tr2



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